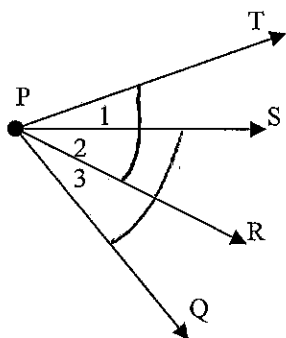


Name Key

Date _____

201 Chapter 2: Proofs 1

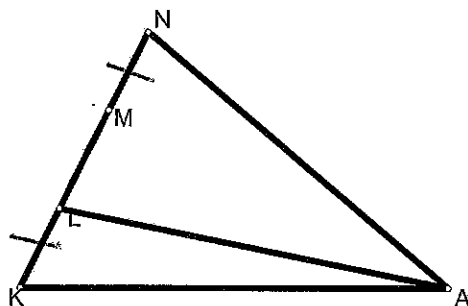
1. Given: $\angle TPR \cong \angle QPS$
 Prove: $m\angle 1 = m\angle 3$



Statements	Reasons
① _____	① Given
② $m\angle TPR = m\angle QPS$	② def of \cong
③ $m\angle TPR = m\angle 1 + m\angle 2$ $m\angle QPS = m\angle 2 + m\angle 3$	③ A.A.P.
④ $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	④ Subst.
⑤ $m\angle 2 = m\angle 2$	⑤ Reflexive
⑥ $m\angle 1 = m\angle 3$	⑥ Subtr.

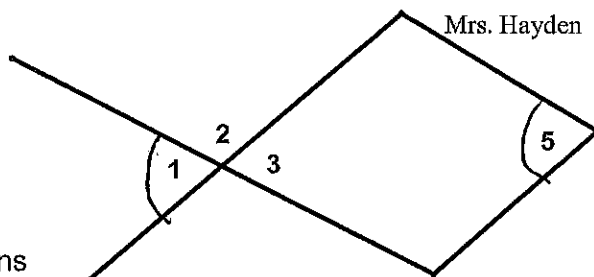
2. Given: $\overline{KL} \cong \overline{MN}$

Prove: $\overline{KM} \cong \overline{LN}$



Statements	Reasons
① $\overline{KL} \cong \overline{MN}$	① Given
② $KL = MN$	② def of \cong
③ $LM = LM$	③ Reflexive
④ $KL + LM = LM + MN$	④ Add
⑤ $KL + LM = KM$ $LM + MN = LN$	⑤ S.A.P.
⑥ $KM = LN$	⑥ Subst.
⑦ $\overline{KM} \cong \overline{LN}$	⑦ def of \cong

3. Given: $\angle 1 \cong \angle 5$
 Prove: $\angle 2$ and $\angle 5$ are supplementary



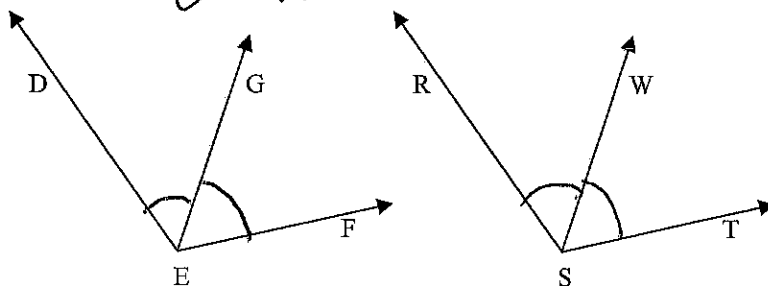
Statements

Reasons

- 1) $\angle 1 \cong \angle 5$
- 2) $m\angle 1 = m\angle 5$
- 3) $\angle 1$ and $\angle 2$ are a linear pair
- 4) $\angle 1$ and $\angle 2$ are supplementary
- 5) $m\angle 1 + m\angle 2 = 180$
- 6) $m\angle 5 + m\angle 2 = 180$
- 7) $\angle 2$ and $\angle 5$ are supplementary

1. Given
2. def of \cong
3. def of linear pair
4. Linear Pair Postulate
5. def of suppl.
6. subst.
7. def of suppl.

4. Given: \overrightarrow{EG} is the bisector of $\angle DEF$,
 \overrightarrow{SW} is the bisector of $\angle RST$
 $m\angle DEG = m\angle RSW$
 Prove: $m\angle DEF = m\angle RST$

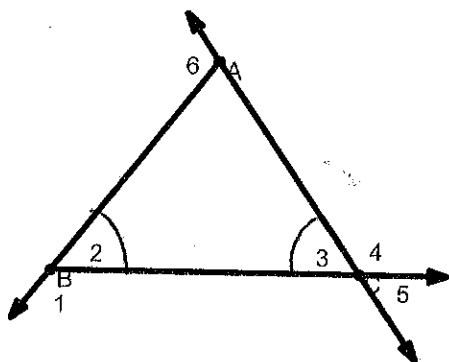


Statements

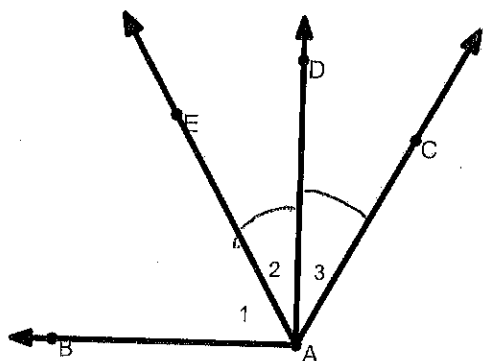
Reasons

- 1) \overrightarrow{EG} is the bisector of $\angle DEF$,
 \overrightarrow{SW} is the bisector of $\angle RST$
- 2) $m\angle DEG = m\angle GEF$
 $m\angle WST = m\angle RSW$
- 3) $m\angle DEG + m\angle GEF = m\angle DEF$
 $m\angle WST + m\angle RSW = m\angle RST$
- 4) $m\angle DEG + m\angle DEG = m\angle DEF$
 $m\angle RSW + m\angle RSW = m\angle RST$
- 5) $2m\angle DEG = m\angle DEF$
 $2m\angle RSW = m\angle RST$
- 6) $m\angle DEG = m\angle RSW$
- 7) $2m\angle DEG = 2m\angle RSW$
- 8) $m\angle DEF = m\angle RST$

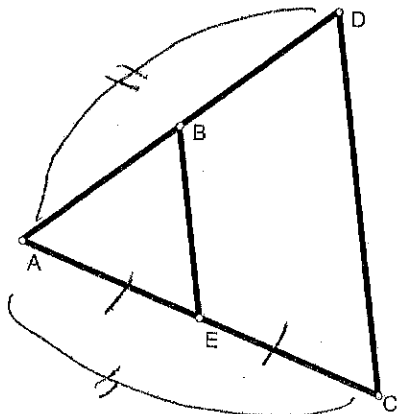
- 1) Given
- 2) def of \angle Bisector
- 3) A.A.P.
- 4) Subst
- 5) Subst
- 6) Given
- 7) Mult
- 8) Subst.

5. Given: $\angle 2 \cong \angle 3$ Prove: $\angle 1 \cong \angle 4$ 

Statements	Reasons
① $\angle 2 \cong \angle 3$	① Given
② $\angle 1 + \angle 2$ are Lin Pair $\angle 3 + \angle 4$ are Lin Pair	② def of Lin Pair
③ $\angle 1 + \angle 2$ are suppl. $\angle 3 + \angle 4$ are suppl.	③ Linear Pair Post.
④ $\angle 1 \cong \angle 4$	④ \cong Suppl. Thm

6. Given: $\overrightarrow{AB} \perp \overrightarrow{AD}$ \overrightarrow{AD} bisects $\angle EAC$ Prove: $m\angle 1 + m\angle 3 = 90$ 

Statements	Reasons
① $\overrightarrow{AB} \perp \overrightarrow{AD}$	① Given
② $\angle BAD$ is Rt \angle	② def of \perp
③ $\angle 1 + \angle 2$ are compl.	③ The Compl. Thm
④ $m\angle 1 + m\angle 2 = 90$	④ def of Compl.
⑤ $m\angle 2 = m\angle 3$	⑤ def of \angle Bis
⑥ $m\angle 1 + m\angle 3 = 90$	⑥ Subst.

7. Given: midpoint E of \overline{AC} ,
 $AC = AD$ Prove: $2AE = AD$ 

Statements	Reasons
① $AC = AD$	① Given
② $AE = EC$	② def of midpt
③ $AE + EC = AC$	③ S.A.P.
④ $AE + AE = AC$	④ subst.
⑤ $2AE = AC$	⑤ Subst
⑥ $2AE = AD$	⑥ Subst